

REMARKS

I. Summary of the Examiner's Action

A. Claim Rejections

Claims 34 and 35 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1, 7, 9, 12, 13, 19, 20, 27, 30, 36, 37, 38 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application No. 0491495 to Gitlin et al. (hereinafter "the Gitlin application") and United States Patent No. 6,529,957 to Joergensen (hereinafter "the Joergensen patent").

Claims 2, 3, 4, 14, 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Joergensen patent as applied to claims 1 and 13, and further in view of The Free On-Line Dictionary of Computing (hereinafter "Foldoc").

Claims 5, 6, 17 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Foldoc as applied to claims 4 and 16, and further in view of United States Patent No. 6,157,935 to Tran et al. (hereinafter the "Tran patent").

Claims 8 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Joergensen patent as applied to claims 1 and 13, and further in

view of United Kingdom Patent Application No. GB 2314487 to Gfeller et al. (hereinafter “the Gfeller application”).

Claims 10 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Joergensen patent as applied to claims 1 and 13, and further in view of United States Patent No. 5,142,550 to Tymes (hereinafter “the Tymes patent”).

Claims 21 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Joergensen patent as applied to claim 20, and further in view of United States Patent Application No. 6,385,210 to Overberg et al. (hereinafter “the Overberg patent”).

Claims 23 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin and Gfeller applications, and the Joergensen patent as applied to claim 22, and further in view of United States Patent No. 6,256,358 to Whikehart et al. (hereinafter “the Whikehart patent”).

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application and Joergensen patent as applied to claim 13, and further in view of the Gfeller application and Overberg and Whikehart patents.

Claims 1, 11, 13 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,253,250 to Schlafler et al. (hereinafter “the Schlafler patent”) in view of the Joergensen patent.

Claims 1, 13, 36 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application.

These rejections are respectfully disagreed with, and are traversed below.

II. Applicants’ Response

A. Rejection of Claims 34 and 35 under 35 U.S.C. § 101

Claims 34 and 35 have been amended thereby overcoming the Examiner’s rejection of these claims on this basis. Support for the amendments is found at, for example, page 13, lines 21 – 27.

B. Prior Art Rejections

Claim 1, as amended, is reproduced here as a convenience to the Examiner (emphasis added):

1. A method of transmission of data messages between a plurality of stations interconnected by a bus line, wherein each said message comprises a frame portion representing content and priority information of the data message and a data portion representing data to be transmitted, the

method comprising the steps of:

causing at least one of said plurality of stations to transmit a data message on to the bus line such that said frame portion thereof is transmitted at a first data transmission rate, and the data portion thereof is transmitted at a second data transmission rate not less than said first data transmission rate;

receiving information relating to signal quality on said bus line;

determining whether to adjust the first data transmission rate in dependence on the information relating to signal quality on the bus line;

determining whether to adjust the second data transmission rate in dependence on the information relating to signal quality on the bus line; and

adjusting at least one of said first data transmission rate or said second data transmission rate in dependence on said determinations.

Support for the amendment is found throughout the application as filed; *see*, for example, page 5, lines 3 – 12; page 8, line 14 – page 9, line 2. Accordingly, no new matter has been added. Applicant has similarly amended the other independent claims in the case. The amendment emphasizes that the method of the invention makes a determination for each of the first and second data transmission rates whether the particular data transmission rate should be adjusted based on signal quality on the bus line. Applicant respectfully submits that none of the references, whether taken singly or in combination, either describe or suggest

this subject matter of claim 1.

Regarding the Gitlin application, it neither describes nor suggests anywhere the possibility that even one of the respective data rates of its packet may be adjusted, never mind making a separate determination for each. In addition, regarding the Joergensen patent, although frequency of operation of the bus disclosed in the Joergensen patent may be adjusted, it neither shows any appreciation for the fact that packet-based data transmission can occur with portions of packets being transmitted at different rates, nor that these separate rates can be independently adjusted. Further, like the Gitlin application, the Schlafer application neither describes nor suggests anywhere the possibility that the data rates of the frame and data portions of its packets can be independently adjusted.

Applicant adds the following additional remarks regarding each of the primary references relied upon by the Examiner in rejecting the independent claims. Regarding the Gitlin application, Applicant directs the Examiner's attention to the discussion set forth in Applicant's July 1, 2005 Response which made clear that the Gitlin application is not concerned with data transmission per se, but rather with problems encountered in optical time division multiplexing systems. Nowhere does it discuss error or error rates encountered in data transmission; rather, it is concerned with reducing the cost of circuitry used in its optical time division multiplexing system. At various points in the description, it is made clear that the overriding principle on which Gitlin's subject matter has been developed is

simplicity and low cost. The problem which Gitlin purports to solve is set forth at Column 1, lines 9 – 33, wherein in the solution the use of complex and expensive electronics is to be avoided. In particular, the use of high speed electronics is to be avoided.

For this purpose, Gitlin provides a header portion of fixed low data rate, which relatively inexpensive electronics is capable of receiving. This low speed electronics is then able to switch the packet according to destination information held in the header, for multiplexing. All of these actions take place before transmission. There is no evidence that transmission is subject to the improvements which Gitlin allegedly provides.

In view of the fact that Gitlin is overwhelmingly concerned with avoiding expensive and complex circuitry, it teaches away from Applicant's invention, since Applicant's invention is more complex in that it provides for adjustable data rates for both the frame and data portions, and the transmission rate of the frame portion is not necessarily limited to low data rates. Applicant's invention does not recite that the frame portion is to be at a low rate. In particular, claim 1 recites that the frame portion is transmitted at a first data transmission rate and the data portion is transmitted at a second data transmission rate. The second data transmission rate is recited as being not less than the first data transmission rate. The present invention allows for adjustment of at least one of the first data transmission rate and the second data transmission rate in order to provide complete flexibility as to the rate at which transmission is to be conducted. If it is determined that adjustment of the first data

transmission rate would improve transmission performance, the first data transmission rate is adjusted; if it is determined that adjustment of the second data transmission rate would improve transmission performance, the second data transmission rate is adjusted; and if it determined that adjustment of both the first and second data transmission rates would improve transmission performance, both are adjusted. Gilin does not provide this since Gitlin is interested in *avoiding* complexity and expense.

Rather than attempting to improve upon Gitlin, one skilled in the art would be motivated to reject its subject matter as a starting point as providing an inflexible system without the capability of improvement. It is clear that Gitlin intends the various data transmission rates to be fixed in order to ensure future compatibility. There is no facility for variation of data transmission rates to take account of local conditions. Data transmission rates are fixed at manufacture in order to provide a “least worst” manner of transmission in a suitably configured system.

Given this full characterization of the scope and contents of Gitlin, and the differences between Gitlin and claim 1, it is not clear how the skilled person would be motivated to improve upon Gitlin in order to reach the present invention, even including consideration of the Joergensen patent.

Joergensen provides disclosure of multispeed Ethernet, particularly including

reducing a data rate on receipt of information that transmission errors have exceeded a threshold. Applicant understands that the Joergensen patent does not disclose a packet as defined in claim 1, and therefore does not address the same problem as that addressed by the present invention. Thus, as a starting point for the assessment of obviousness, Joergensen is clearly inappropriate. Moreover, it would be improper to combine Joergensen with the teaching of Gitlin by virtue of the substantial differences in their disclosures, and particularly the differences between their respective objectives.

Whereas Gitlin is intent on providing a simple and inexpensive optical system, as detailed above, Joergensen is concerned with providing an Ethernet capable of operating at a number of data transmission speeds. Joergensen makes no recognition of the fact that headers and data portions may need to be handled differently. The reader would thus be discouraged from combining the teaching of Gitlin with the teaching of Joergensen.

In fact, one skilled in the art would reject the combination of Joergensen with Gitlin because the end result of such a combination would be to unacceptably raise the complexity of the device described in Gitlin. In particular, it would no longer be possible to rely upon low rate headers being readable by relatively inexpensive electronics, and the “very high speed electronics” described in Gitlin as unacceptable would be the only possible option. One skilled in the art reading Gitlin would thus be entirely discouraged from using the subject matter of Joergensen.

Further, combination of Joergensen and Gitlin would not lead to the invention as recited in claim 1. In Joergensen, variation of data speeds makes no reference to portions of a data packet, as the structure of a data packet is not defined therein. In fact, Joergensen discusses control of a universal data transmission speed, as described at column 3, lines 1 – 6. Independent control of the data transmission rates associated with the frame portion and data portion would not be available by using Gitlin with Joergensen. Instead, as set forth above, Applicant's invention allows for independent adjustment of the respective data transmission rates, in dependence on a signal quality determined for transmission on the bus line. This feature is neither described nor suggested by Gitlin or Joergensen, whether taken singly or in combination.

With regard to paragraph 56 of the Examiner's comments, claim 1 has been amended to recite "receiving information relating to signal quality on said bus line." In view of this amendment, Applicant's previous arguments remain applicable.

With regard to paragraph 43 of the Office Action, the Examiner alleges that claim 1 represents obvious subject matter in view of Schlafer and Joergensen.

Similar to the subject matter of Gitlin, Schlafer is concerned with providing a communication system which can be used with technologically simple and inexpensive equipment. For instance, the abstract of the document establishes this as a general aim, and

column 4, lines 10 – 16 set out the same objective. For reasons similar to those presented with respect to Gitlin, the reader would be entirely discouraged from combining Schlafer with Joergensen. The description of Schlafer teaches away from variable data rates, such as set out in Column 1, lines 15 – 61. By virtue of these comments, Joergensen would be rejected as an example of the art exhibiting problems which Schlafer attempts to overcome, not as potential source of subject matter suggesting how Schlafer may be modified.

With regard to paragraph 49 of the Office Action, the Examiner alleges that the invention as set out in claim 1 is rendered obvious by virtue of Gitlin together with the ordinary skill in the art. For the reasons set forth above, there would be no motivation for one skilled in the art using the subject matter of Gitlin to receive information relating to the signal quality on the bus line, and to make separate determinations whether to adjust the first and second data rates in dependence on the information relating to the signal quality on the bus line. In particular, there can be no question that it would be entirely impractical for a user, in run time, to change the communication cards of Gitlin with cards providing a different transmission rate, as this would require provision of a bank of communication cards with different transmission rates, a skilled operator to change the transmission rate, and it would also require total shutdown of the communication system during changeover. There would be no practical reason for doing this, as it would clearly lead to downtime and a consequent increase in communications delays, rather than enhancing performance and reliability.

For the foregoing reasons, Applicant respectfully submits that claim 1 is patentable over the art of record, whether taken singly or in combination. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claim 1. Applicant also respectfully submits that independent claims 13, 34, 36 and 38 are allowable for reasons similar to those set forth with respect to claim 1, and for reasons attributable to their independently-recited features. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 13, 34, 36 and 38. Applicant also respectfully requests that the Examiner withdraw the rejection of dependent claims 2 -12; 14 – 30; 35, 37 and 39 as depending, either directly or indirectly, on allowable base claims and for reasons attributable to their independently-recited features.

III. Conclusion

Applicant submits that in light of the foregoing amendments and remarks the application is now in condition for allowance. Applicant therefore respectfully requests that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

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Date

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